

## CLAIMS

What is claimed is:

1. A method for analyzing at least one wafer which has a plurality features that were generated with a SAW, comprising the steps of:  
moving a camera, having an image field, over a wafer and thereby acquiring with its image field a plurality of images;  
initializing in a learning phase the image field of the camera, wherein the image field of the camera is divided into SAW-segment-imaging image field segments in such a way that after a definable interval of acquired images, a repetition of an identical allocation of imaged SAW segments in image field segments occurs; and  
carrying out comparison operations in run phases, in which the image field segments of images that have an identical allocation of image field segments to imaged SAW segments are compared with one another and/or with a specific master.
2. The method as defined in claim 1, wherein during initializing the SAW is broken down into logical SAW segments, and the logical SAW segments are allocated to image field segments, in such a way that as the camera travels over the wafer an identical allocation of logical SAW segments to image field segments occurs at a definable travel interval and/or image interval.
3. The method as defined in claim 2, wherein the SAW is divided into logical SAW segments, preferably of identical size, and the logical SAW segments are allocated to the image field segments.

4. The method as defined in claim 2, wherein the logical SAW segments and the image field segments are each indexed, and there is allocated to the image field segments a combination of SAW segment index and image field segment index, on the basis of which a determination is made of the image field segments to be compared, those image field segments which have an identical combination of SAW segment index and image field segment index preferably being compared with one another.
5. The method as defined in claim 1, wherein a comparison of physically adjacent image field segments is performed.
6. The method as defined in claim 1, wherein offsets of a SAW are learned during initializing and are taken into account in determining the allocation.
7. The method as defined in claim 1, wherein at least one region that is invalid and that is blanked out upon comparison of the image field segments can be defined within a SAW and/or a SAW segment, in which context the validity can depend on the position of the SAW on a wafer.
8. The method as defined in claim 1, wherein a line camera or an area camera is used, to acquire a microscopic or macroscopic images.
9. The method as defined in claim 1, wherein a line camera is used, which can acquire microscopic or macroscopic images, and the wafer is illuminated with a continuous light source.

10. The method as defined in claim 1, wherein an area camera is used, which can acquire microscopic or macroscopic images.

11. The method as defined in claim 1, wherein a relative motion of the wafer with respect to the camera occurs, and is preferably continuous.

12. The method as defined in claim 11, wherein an image is acquired by way of a flash that is triggered, with the diaphragm open, as a function of the relative position of the wafer.

13. An apparatus for the analysis of surface images of at least one wafer, wherein the at least one wafer has features that are generated using a SAW, the apparatus comprising:  
a camera to acquire a plurality of images of the at least one wafer, wherein the camera defines an image field;  
a memory region in which the plurality of images of the wafer, acquired with the camera, are storable;  
means for initializing in a learning phase in which the image field of the camera is divided into SAW-segment-imaging image field segments in such a way that after a definable interval of acquired images, a repetition of an identical allocation of imaged SAW segments in image field segments occurs; and  
a processing unit for carrying out comparison operations in such a way that in, the image field segments of images that have an identical allocation of image field segments to imaged SAW segments are compared with one another and/or with a specific model.

14. The apparatus as defined in claim 13 , wherein the memory region is managed, by means of an array and/or a hash function, in such a way that the logical SAW segments and the image field segments are each indexed, and there is allocated to the image field segments a combination of SAW segment index and image field segment index, on the basis of which a determination is made of the image field segments to be compared, those image field segments which have an identical combination of SAW segment index and image field segment index preferably being compared with one another.

15. The apparatus as defined in claim 13, wherein a device of the processing unit compares only physically adjacent image field segments with one another on the basis of a metric.

16. The apparatus as defined in claim 13, wherein the means for initializing are configured to learn offsets of a SAW in the initialization phase and to account for upon determination of the allocation.

17. A software program for a computer, wherein the software program makes the computer to operate according to a method for analyzing at least one wafer which has a plurality features that were generated with a SAW, comprising the steps of:

moving a camera, having an image field, over a wafer and thereby acquiring with its image field a plurality of images;

initializing in a learning phase the image field of the camera, wherein the image field of the camera is divided into SAW-segment-imaging image field segments in such a way that after a definable interval of acquired images, a repetition of an identical allocation of imaged SAW segments in image field segments occurs; and

carrying out comparison operations in run phases, in which the image field segments of images that have an identical allocation of image field segments to imaged SAW segments are compared with one another and/or with a specific master.

18. The software as defined in claim 17, wherein during initializing the SAW is broken down into logical SAW segments, and the logical SAW segments are allocated to image field segments, in such a way that as the camera travels over the wafer an identical allocation of logical SAW segments to image field segments occurs at a definable travel interval and/or image interval.

19. The software as defined in claim 18, wherein the SAW is divided into logical SAW segments, preferably of identical size, and the logical SAW segments are allocated to the image field segments.

20. The software as defined in claim 18, wherein the logical SAW segments and the image field segments are each indexed, and there is allocated to the image field segments a combination of SAW segment index and image field segment index, on the basis of which a determination is made of the image field segments to be compared, those image field segments which have an identical combination of SAW segment index and image field segment index preferably being compared with one another.

21. The software as defined in claim 17, wherein a comparison of physically adjacent image field segments is performed.

22. The software as defined in claim 17, wherein offsets of a SAW are learned during initializing and are taken into account in determining the allocation.

23. The software as defined in claim 17, wherein at least one region that is invalid and that is blanked out upon comparison of the image field segments can be defined within a SAW and/or a SAW segment, in which context the validity can depend on the position of the SAW on a wafer.

24. The software as defined in claim 17, wherein a line camera is used, which can acquire microscopic or macroscopic images, and the wafer is illuminated with a continuous light source.

25. The software as defined in claim 17, wherein an area camera is used, which can acquire microscopic or macroscopic images.

26. A data medium for a computer stores of a software program wherein the software program makes the computer to operate according to a method for analyzing at least one wafer which has a plurality features that were generated with a SAW, comprising the steps of:

moving a camera, having an image field, over a wafer and thereby acquiring with its image field a plurality of images;

initializing in a learning phase the image field of the camera, wherein the image field of the camera is divided into SAW-segment-imaging image field segments in such a way that after a definable interval of acquired images, a repetition of an identical allocation of imaged SAW segments in image field segments occurs; and

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carrying out comparison operations in run phases, in which the image field segments of images that have an identical allocation of image field segments to imaged SAW segments are compared with one another and/or with a specific master.